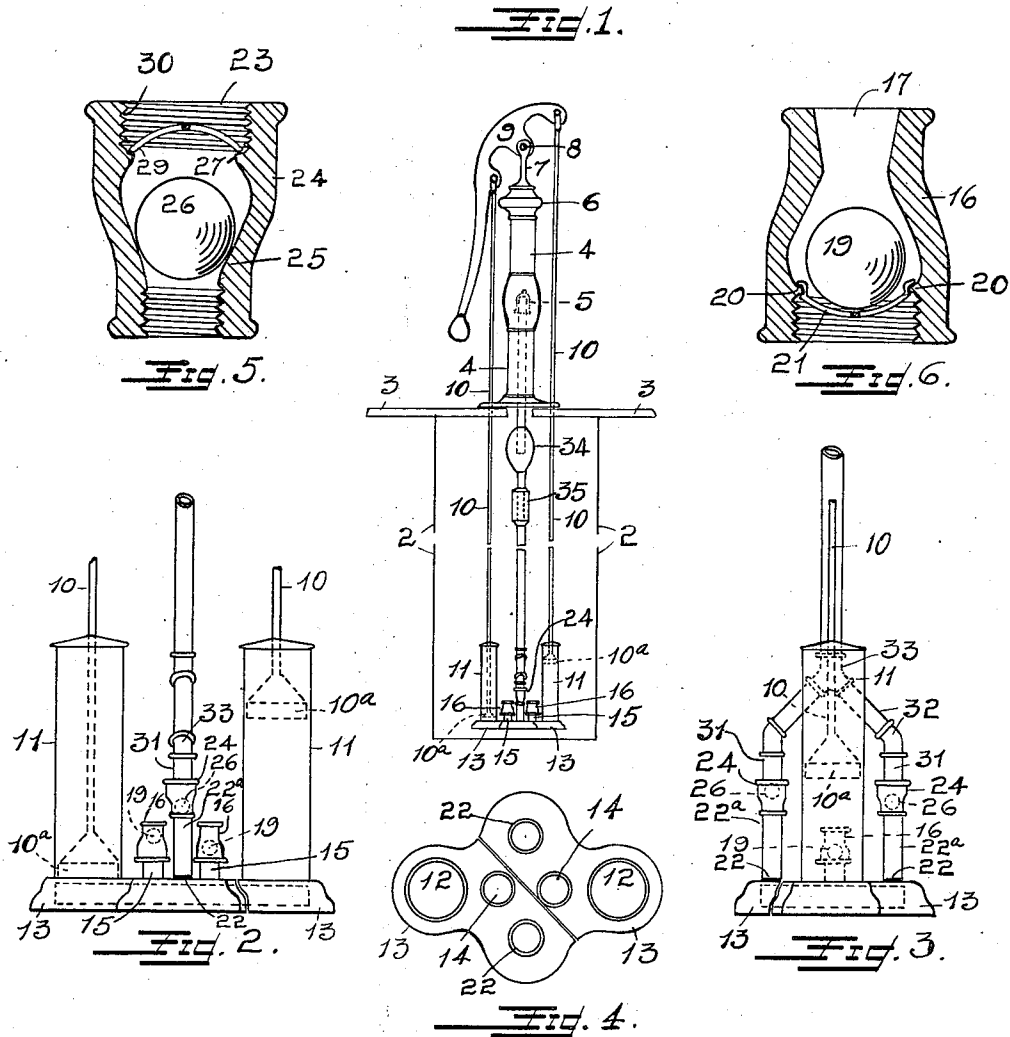


O. A. NOSTRUM.
PUMP.

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WITNESSES:
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PUMP.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, OLOF A. NOSTRUM, a citizen of the United States, and a resident of Galesburg, in the county of Knox and State of Illinois, have invented a new and useful Pump, of which the following is a specification.

My invention has relation to means for elevating water and other liquids, and my improvements are applicable to both single and double acting pumps and to both deep and shallow wells. Also they are applicable to cistern and well pumps, to pumps for elevating liquids to a height, as to a tank, and to mechanically or power-operated pumps.

It is a main object to provide means which will elevate the liquid with but a minimum of power.

It is an object to provide a pump of great simplicity and durability.

It is an object to provide an inexpensive pump.

Minor objects will be in part obvious and in part pointed out.

In order that the invention may be more fully and readily understood I have appended hereto a sheet of drawing illustrating a preferred embodiment of my invention.

In said drawings: Figure 1 is a side elevation, partly broken away and partly diagrammatic, illustrating the manner of placement in a well; Fig. 2, a similar view, enlarged, of the parts of my improvements; Fig. 3, a front elevation of the parts shown at Fig. 2; Fig. 4, a top plan of the base; Figs. 5 and 6, enlarged details, vertical, central sectional views of the eduction and induction valves, respectively.

Referring to the drawing by numerals, the same one indicating the same part in the several figures thereof, 2 indicates a well casing and 3 a well curb or platform.

4 denotes a stock provided with a spout 5 and with a top 6 which supports standards 7 carrying a cross-rod 8 on which is fulcrumed the operating lever or handle 9. Pivoted to the lever 9 are the usual piston rods 10 each of which is provided with a piston 10^a working in a cylinder 11, the lower end of the latter suitably secured (as by threads) in the proper opening 12 in a pair of like hollow castings 13, which castings comprise a base. Each of these is provided with an opening 14 for the engagement of a short section of pipe 15 which at

its upper end engages a subconical valve-case 16 provided with an inlet port 17. The inner wall of the case 16 is constricted at its upper portion to prevent escape therefrom of a ball valve 19, and its lower portion is provided with an interiorly arranged shelf 20 or other means whereon may be supported a wire rack 21 on which the ball 19 rests. While said ball may be of wood or metal I prefer that it be of rubber or other resilient material. Each casting 13 is provided also with a threaded aperture 22 which engages the threads of a short pipe 22^a, the other end of which engages the threads of a subconical valve-case 24 provided with an outlet port 23. Its inner walls are constricted at its lower portion to provide a seat 25 for a ball valve 26 which normally rests thereon. It is provided with an interiorly arranged shelf 27 or the like, for the support of a wire rack 29 which restrains the valve 26 from undue upward movement. At its upper interior portion each valve case 24 is provided with threads 30 for the engagement of a section 31 of an outlet pipe 32 communicating with the outlet, which in the exemplification shown is the spout 5. In the illustrations a union 33 is employed to connect the pipe sections with the tube proper.

34 is an air chamber, the disposition of which is selective, and 35 is a pipe-joint.

It will be evident that communication is established between the openings 12, 14 and 22 in each casting 13, and that in the event of a single acting pump being used, but a single casting, a single inlet valve a single outlet valve, etc., are employed.

In operation: assume the parts to be in the relative positions shown in Fig. 2, which is as indicated in Fig. 1. The port 17 is to be submerged or disposed beneath the surface of the water. By elevating the free end of the handle the positions of the pistons will be reversed, and the quantity of water which is displaced by the descending piston will be driven, or forced into its communicating outlet pipe, thence upwardly, as follows: The pressure exerted by the descending piston being greater than that of the column of water above the ball 26, said ball will be forced from its seat and upwardly, where it will be restrained by the rack 29 which will permit the ready passage of the water. Simultaneously, the air pressure on the body of water in the well will force a quantity thereof to enter through the inlet

port 17, past the sustained ball 19 and into the casing, ready for another actuation of the lever. The simultaneous movement of the balls 19 and 26, and their alternate positions with relation to the valve cases will not require detailed explanation further than to say that the column of water in the pipe 32 forces the ball 26 downwardly on its seat 25 to seal the valve; and that the force exerted by the piston overcomes the force exerted by the water (and air pressure) in the well or cistern and thereby forces the ball 19 upwardly to close that exit, *i. e.*, the port 17, whereby the water will be forced through its only avenue of escape—the valve-case 24 and the outlet pipe.

It has not been thought necessary to encumber this specification and drawings with descriptions and illustrations of modifications or of details which are neither essential to nor form any part of the invention herein claimed. In fact, it is apparent without such, that numerous changes may be made in the details of construction, and by modifications involving only mechanical skill, without departing from the spirit, scope and general idea of the invention.

Therefore, without limiting myself to particularities, I claim as new and desire to secure by Letters Patent the following, to-wit:

1. Means of the character described comprising a cylinder, a piston working therein,

a submerged inlet-valve case, a ball working therein and operable to close said case by actuation of the piston in one direction, an outlet-valve case, a ball working therein to open the last recited case by actuation of the piston in the direction before recited, a loosely mounted rack disposed within the inlet-valve case and adapted to restrain the ball from downward movement, and a loosely mounted rack disposed within the outlet-valve case and adapted to restrain the ball from upward movement.

2. A pump comprising a hollow base, a cylinder in communication therewith, a piston working in said cylinder, an inlet-valve case also in communication with said base and removable therefrom, an outlet-valve case also in communication with said base and removable therefrom, a ball in each of said cases, said balls simultaneously operable by the same movement of said piston, and outlet pipes in communication with said outlet cases.

In witness whereof I hereunto affix my signature at Galesburg, Illinois, this 21st day of February, 1911, in the presence of two subscribing witnesses.

OLOF A. NOSTRUM.

Witnesses:

HERBERT L. MILLER,
WEBB A. HERLOCKER.